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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,781	12/28/2001	Siavash Fallahi	1875.1270001/JTH/BAM	6416

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EXAMINER
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BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
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2646

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/028,781	Applicant(s) FALLAHI ET AL.	
	Examiner Walter F. Briney III	Art Unit 2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-26 is/are allowed.
- 6) ☒ Claim(s) 1-3, 11, 12, 14, 27-29 and 34-36 is/are rejected.
- 7) ☒ Claim(s) 4-10, 13 and 30-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1, 11, 12, 14 and 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by McCormack et al. (US Patent 6,535,983).**

**Claim 1** is limited to “a communications device.” McCormack teaches a system and method for signaling and detecting a request for power over Ethernet. See Abstract. As seen in figure 2, a phone (12”) includes a DC load (33). A Hub/Switch (10) includes a variable power source (50) that provides power to the load over the Ethernet twisted pair wiring (14). The delivered power is separated from signaling by way of transformers (28) and (30) as well as the series combination of Zener diode (36) and resistor (38). See column 6, line 63, through column 7, line 54. The load (33) includes those elements depicted in figure 4. In particular, a plurality of diodes (72) and (74) control the flow of current through the load (12”) during two operational phases to be explained below. During a detection phase, the load (12”) receives current and passes it in the manner shown in figure 5A. During an operation phase, the load (12”) receives current and passes it in the manner shown in figure 5B.

With respect to the claim language, the phone (12") illustrated in figure 2 corresponds to the "communications device" as recited. The circuit of figure 4 corresponds to the "substrate" that has an input (top 14) and an output (bottom 14) that connect to a network device (10) by way of Ethernet twisted pair wiring (14). Diode (72) corresponds to the "relay" as recited. It is noted that diode (72) is *inherently* "capable" of being closed when zero volts is applied to either the anode or cathode terminal as long as an appropriate bias is applied to the other terminal to activate the diode. Diode (74) corresponds to the "switch component" while power load (33) corresponds to the "resistor component" as recited. It is noted that as the name suggests, the power load *inherently* draws current, and thus, "provides a termination for an external circuit that is disposed external to said substrate." Power for the power load is provided from a network device such that "said external circuit" is *inherently* "connected to said input of said substrate." During the detection phase, diode (72), i.e. "relay," is closed when power is not provided to the power supply (33), and thus, when no power is applied to the phone (12"). At the same time, diode (74), i.e. "switch," is open. See figure 5A. During the operation phase, diode (74), i.e. "switch," is closed and power is provided to the power supply/power load (33), resulting in power being supplied to the phone (12"). At the same time, diode (72), i.e. "relay," is open. Therefore, McCormack anticipates all limitations of the claim.

**Claim 11** is limited to "the communications device of claim 1," as covered by McCormack. The language of this claim appears to have been substantially incorporated into claim 1, however, this language does recite that the switch and

resistor that form the switchable termination resistor are arranged in series. However, figure 4 of McCormack clearly illustrates that the power load (33), i.e. "resistor," and the diode (74), i.e. "switch," are in series as claimed. Therefore, McCormack anticipates all limitations of the claim.

**Claim 12** is limited to "the communications device of claim 11," as covered by McCormack. The impedance caused by the current draw requirements of the power load inherently "causes said external circuit to have a substantially constant input impedance." Therefore, McCormack anticipates all limitations of the claim.

**Claim 14** is limited to "the communications device of claim 1," as covered by McCormack. McCormack discloses that device (12") is a phone that transmits Ethernet packets. See column 6, lines 63 and 64. In other words, it is an "internet protocol telephone" and together with hub/switch (10) forms an "internet protocol telephone network." Therefore, McCormack anticipates all limitations of the claim.

**Claim 34** is limited to "a communications device." The "substrate," the "relay" and the "switchable termination resistor" as claimed have been shown to be anticipated by McCormack apropos the rejection of claim 1.

**Claim 35** is limited to "the communications device of claim 34," as covered by McCormack. The circuit of figure 4 is clearly a physical device, and thus, corresponds to a "physical layer of said communications device." When power is not applied, the circuit of figure 4 operates in the manner discussed apropos the rejection of claim 1. Therefore, McCormack anticipates all limitations of the claim.

**Claim 36** is limited to “the communications device of claim 34,” as covered by McCormack. McCormack discloses that device (12”) is a phone that transmits Ethernet packets. See column 6, lines 63 and 64. In other words, it is an “internet protocol telephone.” Therefore, McCormack anticipates all limitations of the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 2, 3 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCormack in view of Campardo et al. (US Patent 5,886,925).**

**Claim 2** is limited to “the communications device of claim 1,” as covered by McCormack. Diode (72) corresponds to the “relay” as recited. However, McCormack fails to suggest using a transistor, let alone a native FET, to implement said diode. Therefore, McCormack fails to anticipate the limitations of the claim that recite, “wherein said relay includes a native field effect transistor having a source and a drain.” As will be shown below, this deficiency in McCormack is the result of an obvious modification.

In particular, as McCormack doesn’t appear to suggest any particular selection criteria for the diodes (72) and (74) besides their polarity and orientation within the circuit of figure 4, it is submitted that the use of a native FET diode is motivated based on its low threshold voltage, which reduces the voltage requirements of the phone (12”).

In particular, using native devices will reduce the series voltage loss across the circuit of figure 4, and thus, a cost savings occurs. The prior art is replete with occurrences of native FET diodes. For example, Campardo teaches a diode-connected native NMOS transistor (48) seen in figure 5 that has a low threshold voltage unaltered during fabrication. See column 6, lines 13-15.

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a diode using a diode-connected native transistor as taught by Campardo because McCormack simply fails to disclose what diodes (72) and (74) comprise and because native devices benefit from low threshold voltage, and thus, lower series voltage losses.

**Claim 3** is limited to "the communications device of claim 2," as covered by McCormack in view of Campardo. An inherent property of native FET devices is that they conduct with approximately zero volts applied to their gates. Therefore, McCormack in view of Campardo makes obvious all limitations of the claim.

**Claim 27** is limited "a communications device." McCormack discloses a system and method for signaling and detecting a request for power over Ethernet. See Abstract. See the rejection of claim 1 for a brief synopsis of McCormack's invention and its operation.

With respect to the claim language, the phone (12") of McCormack corresponds to "the communications device." The circuit of figure 4 corresponds to the "substrate." Zener diode (36) corresponds to the "filter." Resistor (66) corresponds to the "switchable termination." Diodes (72) and (74) in combination correspond to the "relay."

For similar reasons apropos the rejection of claim 2, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the diodes (72) and (74) with diode-coupled native FET devices, such as those taught by Campardo. Therefore, McCormack in view of Campardo makes obvious all limitations of the claim.

**Claim 28** is limited to "the communications device of claim 27," as covered by McCormack in view of Campardo. The "termination" of McCormack includes "at least one resistor" (66) and a "switch" (62). Therefore, McCormack in view of Campardo makes obvious all limitations of the claim.

**Claim 29** is limited to "the communications device of claim 28," as covered by McCormack in view of Campardo. When power is applied to line (14) located at the top of figure 4, switch (62) closes. Therefore, McCormack in view of Campardo makes obvious all limitations of the claim.

### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

**3. Claims 15-26 are allowed.**

**Claims 15-26** are allowable for the same reasons set forth in the previous Non-Final Office Action filed 25 August 2004.

**4. Claims 4-10, 13 and 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**



**Claim 4** is limited to “the communications device of claim 3,” as covered by McCormack in view of Campardo. While the diodes (72) and (74) are, in fact, “rectifying circuits,” the diodes have already been shown to correspond to other features of the claim, and thus, cannot constitute the “rectifying circuit” as claimed as a further element of the communications device. Thus, claim 4 is allowable over McCormack in view of Campardo.

**Claims 5-10 and 13** are limited to “the communications device of claim 4,” and thus, are allowable over McCormack in view of Campardo for at least the same reasons.

**Claim 30** is limited to “the communications device of claim 27,” as covered by McCormack in view of Campardo. There are simply no further rectifiers disclosed or taught by either McCormack or Campardo. Thus, claim 30 is allowable over McCormack in view of Campardo.

**Claim 31** is limited to “the communications device of claim 30,” and thus, is allowable over McCormack in view of Campardo for at least the same reasons.

**Claim 32** is limited to “the communications device of claim 27,” as covered by McCormack in view of Campardo. There are simply no means for grounding the gates of the native FET devices taught by Campardo. Thus, claim 30 is allowable over McCormack in view of Campardo.

**Claim 33** is limited to “the communications device of claim 32,” and thus, is allowable over McCormack in view of Campardo for at least the same reasons.

***Response to Arguments***

Applicant's arguments with respect to claims 1-14 and 27-36 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB  
12/27/05



**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**